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JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE		
7 FLOOR-1, NO. 100		
ROOSEVELT ROAD, SECTION 2		
TAIPEI, 100		
TAIWAN		

EXAMINER
CHANG, JOSEPH

ART UNIT	PAPER NUMBER
2817	

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/711,380  
Filing Date: September 15, 2004  
Appellant(s): TUNG, YEN-CHANG

**MAILED**  
**MAY 25 2007**  
**GROUP 2800**

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Belinda Lee  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 2/11/07 appealing from the Office action  
mailed 5/2/06.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US Patent 5,331,295	Jelinek et al.	7-1994
US Patent 5,798,669	Klughart	8-1998

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Jelinek et al., US Patent 5,331,295.

Regarding claims 1 and 16, the Jelinek et al. reference discloses a VCO (Figure 1) comprising: a constant current source (12) for providing a reference current (12), a V-I converter (left transistor of 16, the core of V-I converter left side of dotted line) for determining a first current, input voltage (Vref), a current mirror (110 and right transistor of 16), a first current terminal (node of 12), a second current terminal (138), a first current (current through left side of 16), a second current (current through right side of 16), a third current (current through 138), an oscillating circuit (22). It is noted that the reference current 12 is the sum of the first current and the second current and because of current mirror, the third current (138) is approximately equal to the second current.

Regarding claims 3 and 4, Figure 1 shows the constant current source having input (up) and output (connection to the ground), the current mirror having right side of P-type FET of 16 and 110 which is inherently P-type of FET and it's connections as recited in the claim because the reflection of Current Mirror 110 is a P-type.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 5-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jelinek et al. in view of Klughart.

Regarding claim 5, as discussed above, the Jelinek et al. reference discloses a VCO as recited in the claims including a V-I converter except the V-I converter being a P-type of transistor. As would have well known in the art, transistors of N-type or P-type are interchangeably used based on the circuit design preference and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use p-type of transistor at the left side of 16 in Jelinek et al. because such a modification would have been a mere substitution of an art recognized equivalent transistor.

Regarding claim 6, having a transistor where its body is coupled to the source is well known in the art, for example, Klughart teaches such configuration that used in generation of reference voltage and current because it is immune to changes in temperature and operating supply voltage, and therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use such transistors because such a modification would have provided the benefit as stated above.

Regarding claim 7, having a resistor where the transistor is coupled to the power supply would have been obvious to one of ordinary skill in the art at the time of the

invention based on the consideration of limiting the power supply current to the transistor for desired operating conditions.

Regarding claim 8, having an op-amp where input of the transistor is coupled would have been obvious to one of ordinary skill in the art at the time of the invention based on the consideration of buffering input signal to the transistor for desired operating conditions.

Regarding claim 9, having another P-type transistor connected in series would have been obvious to one of ordinary skill in the art at the time of the invention based on the consideration of current boosting for desired operating conditions.

Regarding claim 2, having a wave shaping circuit coupled to the oscillator would have been obvious to one of ordinary skill in the art at the time of the invention based on the consideration of shaping of the oscillation output for desired operating conditions.

Regarding claim 10-15, the structures as recited in the claims 1-9 except using N-type of transistors with their intended connections would have been obvious to one of ordinary skill in the art at the time of the invention because such a modification would have been a mere substitution of art recognized equivalent transistors.

The Official Notice is taken because the facts asserted to be well known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well known.

#### **(10) Response to Argument**

Regarding applicant comments directed to the rejection of claims 1, 3, 4, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Jelinek et al., Appellant argues

*“the first current should not be arbitrarily designated to any by the Examiner, because it has been defined as passing through the voltage/current converter. It is easy to identify that a left side of a converter is clearly not the converter itself, and also a current through a left side of a converter or the like is clearly not the current passing through the converter. Therefore, current through left side of 16 of Jelinek does not read on the first current as required by claim 1”.* This argument is not persuasive because the left side of 16 is where the first current flows, the core of the voltage/current converter. The “a V-I converter” is left side of dotted line, that is substantially the same structure as 210 of Figure 2A shown in this application and converts the input voltage,  $V_{ref}$  into the output current (138). Therefore, current through left side of 16 of Jelinek is “a first current passing through the voltage/current converter according to the input voltage” as recited in claim 1.

Appellant further argues *“the current of the second current source 14 of Jelinek that involved in the equation does not satisfy the limitation of the first current, i.e., ‘passing through the voltage/current converter’.* Only when after combined with the reference current provided by the first current source 12, current from the second current source of Jelinek can reach and thereafter pass through the alleged voltage/current converter”. This argument is not commensurate with the ground of rejection. The second current source is current through right side of 16, not 14. The current source 14 of Jelinek has nothing to do with the scope of the claim.

Regarding applicant comments directed to unanswered arguments presented in after Final Rejection, (a) Appellant argues Jelinek et al. does not anticipate “a constant current source, for providing a reference current, ... wherein the second current is the reference current subtracted by the first current” as claimed in claim 1 because the reference current is obtained by subtracting the variable second current provided by the

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second current source 14 from the constant first current provided by the first current source 12. This argument is not persuasive because the second current source is current through right side of 16, not 14. The current source 14 of Jelinek has nothing to do with the scope of the claim. The reference current 12 is sum of the first and second current that is left and right sides of 16; (b) Appellant argues that “the second split current passing through right transistors of 16 is obtained by comparing the input voltage  $V_{filter}$  20 to the reference voltage  $V_{ref}$ ”, which is different from the invention that “a voltage/current converter, coupled to the constant current source, for determining a first current passing through the voltage/current converter according to the input voltage” as claimed in claim 1. This argument is not persuasive because the second split current passing through right transistor of 16 has nothing to do with the scope of the recitation, “a voltage/current converter, coupled to the constant current source, for determining a first current passing through the voltage/current converter according to the input voltage” because electrical basic circuitry principle dictates that the first current (left side of 16) flows according to the input voltage ( $V_{ref}$ ) which is coupled to the constant current source (12).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.




For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Joseph Chang 

Conferees:

Darren Schuberg 

Robert Pascal 